Techno India NJR Institute of Technology

Academic Administration of Techno NJR Institute

Lab Deployment

Name of Faculty: Mr Rajkumar Soni	Subject Code: 7EE4-22
Subject Name: Advance control system lab	SEM: VII
Department: Department of Electrical Engineering	
Total No. of Labs Planned: 12	

COURSE OUTCOMES HERE (3 OUTCOMES)
At the end of this course students will be able to:
1 Ability to formulate transfer function for given control system problems.
2 Ability to find time response of given control system model.
3 Plot Root Locus and Bode plots for given control system model
4 Ability to design Lead, Lag, Lead-Lag systems in control systems
5 Ability to design PID controllers for given control system model

Labs No.	Name of Experiment
1	Determination of transfer functions of DC servomotor and AC servomotor.
2	Time domain response of rotary servo and Linear servo (first order and second order) systems using MATLAB/Simulink.
3	Simulate Speed and position control of DC Motor

4	Frequency response of small-motion, linearized model of industrial robot (first and second order) system using MATLAB.
5	Characteristics of PID controllers using MATLAB. Design and implementation of P, PI and PID Controllers for temperature and level control systems;
6	Design and implement closed loop control of DC Motor using MATLAB/Simulink and suitable hardware platform.
7	Implementation of digital controller using microcontroller;
8	Design and implementation of controller for practical systems - inverted pendulum system.
9	To design and implement control action for maintaining a pendulum in the upright position (even when subjected to external disturbances) through LQR technique in an Arduino Mega.
10	The fourth order, nonlinear and unstable real-time control system (Pendulum & Cart Control System)
11	Mini project on real life motion control system

TEXT/REFERENCE BOOKS

1. Smarjit Ghosh, Control Systems: Theory and Applications, 2/e, Pearson Publisher. 2004

2 Dhannesh N. Manik: Control System, Cengage Learning. 2012

3 I. J. Nagrath and M. Gopal: Control Systems Engineering, 3rd Ed, New Age Publication.

4 K. R. Varmah: Control Systems, MGH 2010

5 Anandnatrajan et. al.: Control Systems Engineering, 4th ed., Scitech Pub.

For Techno-India NJR Institute of Technology

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